

MICROGRAPHIA

Des Cartes principles, by conceiving the Globuls of the Air, to find less and less resistance against that side of them which is more or by a way, which I have further explicated in the Inquiry of Colours, to be from an obliquation of the pulse of light, so that one part is continually promoted, and consequently refracted more perpendicular, which cuts the Orbs at right angles. Now I shall lay down the Figure of the *Curve line*, describ'd by this way of light, and now stand to examine, especially since there may be some reason to think there may be varieties of the Positions of the *intermediate* *density* and *rarity* between the bottom and the top of the *intermediate*.

I could produce many more Examples and Experiments, and prove this first Proposition, *viz.* that there is such a property in some bodies as will cause inflection. As not to mention *serv'd in Horn, Tortoise-shell, transparent Gums, and resins*. The *veins* of Glass, nay, of melted *Crystal*, found, and made by Glass-grinders, and others, might sufficiently prove the truth of it to any diligent Observer.

But that, I presume, I have by this Example given (*viz. ocular demonstration*) to evince, that there is such a property in the bending of the rayes of light, as I have call'd it *inflection*, both from *reflection*, and *refraction* (since they are both effected by the same superficies, this only in the middle); and likewise, that it is sufficient to produce the effects I have ascribed to it.

It remains therefore to shew, that there is such a property in the Air, and that it is sufficient to produce all the above mentioned effects, and therefore may be the principal, if not the only cause.

First, That there is such a property, may be proved from the parts of the Air are some of them more condens'd, others more rare, either by the differing heat, or differing pressure it suffers, or from somewhat heterogeneous vapours interspers'd through it, so that it is more or less rarified, so does it more or less refract a ray of light, as it comes out of a denser medium) from the perpendicular, and so you may find true, if you make tryal of this Experiment.

Take a small Glass-bubble, made in the form of the Figure of the 37. *Scheme*, and by heating the Glass very much, by very much rarifying the included Air, or, which is better, by driving a small quantity of water, included in it, into vapour, so as to expel the most part, if not all the Air, and then seal up the neck of it, and letting it cool, you may find, if you place it in a convenient Instrument, that there will be a manifest difference in the refraction.

As if in this second Figure you suppose A to represent the eye, through which the eye looks upon an object, as B, the Glass-bubble B, and the second sight L; all which remain in their several places, the object C being so sized and placed, that it may just seem to touch the upper and under edge of the bubble, so all of it be seen through the small Glass-ball of rarified Air.